```
void pickup(int i) {//i=0,1,...,4
    enter(IM);
    state[i] = hungry;
    test(i);
    if(state[i] != eating)
        wait(self[i], self_count[i], IM);
    leave(IM);
}
```

```
void putdown(int i) {//i=0,1,2,..,4
    enter(IM);
    state[i] = thinking;
    test((i - 1) % 5);
    test((i + 1) % 5);
    leave(IM);
}
```

```
void test(int k) {//k=0,1,...,4
    if((state[(k-1)%5] != eating) && (state[k] == hungry) && (state[(k+1)%5] != eating)) {
        state[k] = eating;
        signal(self[k], self_count[k], IM);
    }
}
```